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MANELLI DENISON & SELTER
2000 M STREET NW SUITE 700
WASHINGTON, DC 20036-3307

EXAMINER

SHECHTMAN, SEAN P

ART UNIT PAPER NUMBER

2125

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/829,436

Applicant(s)

FAIRLIE ET AL.

Examiner

Sean P. Shechtman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25, 29, 31-35, 37-50, 52-67, 69-74 and 77-81 is/are pending in the application.
- 4a) Of the above claim(s) 82 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25, 29, 31-35, 37-50, 52-67, 69-74 and 77-81 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/387,828.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Albert W. Paladini 9-27-05
ALBERT W. PALADINI
PRIMARY EXAMINER

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/14/05; 3/7/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

RD

DETAILED ACTION

1. Claims 25, 29, 31-35, 37-50, 52-67, 69-74, and 77-82 are presented for examination.

Claims 25, 29, 31-35, 37, 40, 42, 45, 50, 52-55, 62, 64, 66, 67, 69-71, 74, and 79 have been amended. Claim 82 has been added.

Election/Restrictions

2. Newly submitted claim 82 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Newly submitted claim 82 is directed to controlling the generation of hydrogen based on the price of electricity and has separate utility such as the distribution of services or products (e.g., utilities, heating, etc.) in a building by an “auction” or bidding system.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 82 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features must be shown or the feature(s) canceled from the claim(s). A hydrogen conversion device is an internal combustion engine (claim 43); electricity for said electricity grid is produced by a plurality of primary energy resources (claim 47); said primary energy resources include renewable resources (claim 48); said primary energy resources include fossil fuels, wind, solar, nuclear and hydro (claim 49); energy availability data includes real time data, stored data, energy cost data (claims

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50, 52, 53); electricity generated by a hydrogen conversion device is transmitted to an electricity grid (claim 56); energy availability data includes data pertaining to the type of primary energy resources used for producing said electricity (claim 66); energy availability data includes data pertaining to credits awarded for use of certain energy sources (claim 67); a hydrogen storage apparatus comprises at least one hydride storage chamber (claim 70); a hydrogen storage apparatus comprises at least one container for storing pressurized hydrogen (claim 71); data is transmitted to said controller using the same wires that are used to deliver said electricity (claim 77). No new matter should be entered.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly

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indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 67 and 77 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

5. Claim 67 requires the limitation of a controller for processing data pertaining to credits awarded for use of certain energy sources that delivered electricity to a hydrogen generator. The examiner respectfully submits that, while the specification teaches users can define demands for hydrogen transmitted by means of use of a credit card and the specification also teaches the hydrogen network enables money payments to be made for services provided in real time as for preferred forms of energy sources based on environmental impact, the specification is silent to teach a controller having a computer processor for receiving and processing control inputs; said control inputs including data concerning the availability of electric energy for use by said hydrogen generator, wherein said energy availability data includes data pertaining to credits awarded for use of certain energy sources; and said controller being operatively connected to said hydrogen generator for controlling the generation of hydrogen based in part on said control inputs. Disclosure in an application that merely renders the later-claimed invention obvious is

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not sufficient to meet the written description requirements of 35 U.S.C 112, first paragraph.

Lockwood, v. American Airlines, Inc. 41 U.S.P.Q.2d. 1961, 1966 (Fed. Cir. 1997).

6. Claim 77 requires data concerning a source of electric energy to be transmitted to and processed by a controller using the same wires that are used to deliver electricity to a hydrogen generator. The examiner respectfully notes paragraph 43 of the specification, wherein applicant teaches "[I]n the practice of the present invention in a preferred embodiment, the wires that deliver the electrical energy to the electrolyser are used to communicate useful information about the state of the electrolysis process to related devices". The examiner respectfully submits that while the specification may be enabling for wires that deliver electrical energy to a electrolyser that are also used to communicate useful information about the state of the electrolysis process to related devices, the specification is silent to teach that the related devices be a controller and any useful information be data concerning the availability of electric energy for use by a hydrogen generator. Disclosure in an application that merely renders the later-claimed invention obvious is not sufficient to meet the written description requirements of 35 U.S.C 112, first paragraph. Lockwood, v. American Airlines, Inc. 41 U.S.P.Q.2d. 1961, 1966 (Fed. Cir. 1997).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 50, 52-56, 62-67 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 50, 52, 53, recite the limitation "said energy availability data" in lines 1-2.

Claim 54 recites the limitation "said energy availability data" in lines 2-3. Claim 55 recites the

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limitation "said energy availability data" in line 3. Claim 62 recites the limitation "said energy availability data" in line 4. Claim 64 recites the limitation "said energy availability data" in line 3. Claims 66-67 recite the limitation "said energy availability data" in line 1. Claim 66 recites the limitation "the type of primary energy resources" in line 2. Claim 66 recites the limitation "said electricity" in line 3. There is insufficient antecedent basis for these limitations in the claims.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 25, 29, 31, 32, 33, 34, 35, 37-44, 66, 71, 72, 73, 74, 79, 80, 81, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,346,778 to Ewan et al (hereinafter referred to as Ewan), previously supplied by the examiner.

Referring to claims 25, 29, 31, 32, 33 and 79, Ewan teaches a hydrogen energy system comprising:

a hydrogen generator for generating hydrogen by water electrolysis using electrical energy received from a source of electric energy (Fig. 1, element 15; Col. 3, lines 19-20; Col. 7, lines 8-12; Col. 4, lines 55-57);

a hydrogen storage apparatus for storing at least some of the hydrogen generated by said hydrogen generator (Col. 7, lines 14-16; Fig. 1, element 4);

a controller having a computer processor for receiving and processing control inputs (Fig. 2; element 140; Col. 8, lines 15-21);

said control inputs including data concerning the availability of electric energy for use by said hydrogen generator (Col. 9, lines 25-33; Col. 4, lines 35-38), data concerning said hydrogen generator (Col. 8, lines 56-63 and/or Col. 9, lines 10-21), data concerning hydrogen demand (Col. 2, lines 63-68; Col. 8, lines 56-63), and data concerning said hydrogen storage apparatus (Figs. 1 and 2, element 123); and

said controller being operatively connected to said hydrogen generator for controlling the generation of hydrogen based in part on said control inputs (See Fig. 2, and for example, Col. 9, lines 25-33).

The examiner respectfully submits that the claims, as such, do not require that the control of the generation of hydrogen be based on data concerning the availability of electric energy for use by said hydrogen generator, data concerning said hydrogen generator, data concerning hydrogen demand, and data concerning said hydrogen storage apparatus. In fact, the data is not even required to be the availability of electric energy data, hydrogen generation data, hydrogen storage data, hydrogen demand data, or even any energy data. Further still, even though the data concerning demands for hydrogen is not even required to be hydrogen demand data, there is not even any requirement, in the claims as such, on what the hydrogen is in demand for, i.e., a hydrogen fuel load, hydrogen storage, etc.

Referring to claim 34, Ewan teaches the system above, wherein the controller further controls the storage of hydrogen (Fig. 2, element 110; Col. 8, lines 40-47).

Referring to claims 35, 37, 39, and 80, Ewan teaches the system above, further comprising a compressor for compressing said hydrogen to a minimum desired pressure prior to storage in said hydrogen storage apparatus (Col. 7, lines 25-38, see Fig. 2 element 91).

Referring to claim 38, Ewan teaches the system of claim 35, wherein said controller controls the generation, compression, and storage of hydrogen (Col. 8, lines 15-21).

Referring to claim 40-44, 81, Ewan teaches the system above further comprising a hydrogen delivery system for delivering hydrogen from *at least one of* said hydrogen generator and said hydrogen storage apparatus to a hydrogen user (See Fig. 1, element 59); wherein said hydrogen user is a hydrogen conversion device for powering a vehicle (Col. 5, lines 9-12, the fuel cell).

Referring to claim 66, Ewan teaches the system above, wherein said energy availability data includes data pertaining to the type of primary energy resources used for producing said electricity (Col. 9, lines 25-33; Col. 4, lines 35-38).

Referring to claim 71, Ewan teaches the system above, wherein said hydrogen storage apparatus comprises at least one container for storing pressurized hydrogen (Fig. 1, element 4).

Referring to claim 72 and 73, Ewan teaches the system as claimed in claim 25 wherein said controller controls the amount and duration of electricity received by said hydrogen generator (Col. 9, lines 25-33; Col. 4, lines 35-38).

Referring to claim 74, Ewan teaches the system above, wherein said controller comprises a plurality of controllers (Fig. 1, at least elements 140 and 94).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 45-49, 54, 57-61, 62, 63, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ewan as applied to claims 25, 29, 31, 32, 33, 34, 35, 37-44, 66, 71, 72, 73, 74,

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79, 80, 81, above, and further in view of U.S. Pat. No. 5,592,028 to Pritchard (hereinafter referred to as Pritchard).

Referring to claim 62, Ewan teaches a source of electric energy includes a non-grid source of electric energy and the controller selects a source of electrical energy based on data including said energy availability data (Col. 9, lines 25-33; Col. 4, lines 35-38).

Referring to claim 63, Ewan teaches the system comprising a device for converting hydrogen into electricity (Col. 5, lines 9-12, the fuel cell).

Referring to claim 45, Ewan teaches all of the limitations set forth above, however fails to teach a hydrogen conversion device for receiving hydrogen from *at least one of* said hydrogen generator and said hydrogen storage apparatus and converting said hydrogen into thermal energy.

Referring to claim 46, Ewan teaches all of the limitations set forth above, however fails to teach said source of electric energy includes an electricity grid.

Referring to claim 47, Ewan teaches all of the limitations set forth above, however fails to teach electricity for said electricity grid is produced by a plurality of primary energy resources.

Referring to claims 48 and 59, Ewan teaches all of the limitations set forth above, however fails to teach said primary energy resources include renewable resources.

Referring to claims 49 and 61, Ewan teaches all of the limitations set forth above, however fails to teach said primary energy resources include *at least one of the following*: fossil fuels, wind, solar, nuclear and hydro.

Referring to claim 54, Ewan teaches all of the limitations set forth above, however fails

to teach said controller modulates the generation of hydrogen by said hydrogen generator based on data including said energy source data.

Referring to claim 57, Ewan teaches all of the limitations set forth above, however fails to teach said source of electric energy includes at least one non-grid source of electric energy.

Referring to claim 58, Ewan teaches all of the limitations set forth above, however fails to teach said at least one non-grid source of electric energy is produced by at least one primary energy resource.

Referring to claim 60, Ewan teaches all of the limitations set forth above, however fails to teach said renewable resources include *at least one of* wind, solar, and hydro.

Referring to claim 62, Ewan teaches all of the limitations set forth above, however fails to teach a source of electric energy includes an electricity grid.

However, Pritchard teaches analogous art, wherein Pritchard teaches a hydrogen energy system comprising: (a) a hydrogen generator for generating hydrogen from electricity received from a source of electric energy (Col. 4, lines 59-61); and (b) a controller for processing data concerning said source of electric energy (Col. 3, lines 38-42).

Referring to claim 45, Pritchard teaches the system further comprising a hydrogen conversion device for receiving hydrogen from *at least one of* said hydrogen generator and said hydrogen storage apparatus and converting said hydrogen into thermal energy (Col. 6, claim 4).

Referring to claim 46, Pritchard teaches the system wherein said source of electric energy includes an electricity grid (Fig. 1, element 3; Col. 2, lines 56-59).

Referring to claim 47, Pritchard teaches the system wherein electricity for said electricity grid is produced by a plurality of primary energy resources (wind farm, Col. 2, line 57).

Referring to claims 48 and 59, Pritchard teaches the system wherein said primary energy resources include renewable resources (wind farm, Col. 2, line 57).

Referring to claims 49 and 61, Pritchard teaches the system wherein said primary energy resources include *at least one of the following*: fossil fuels, wind, solar, nuclear and hydro (wind farm, Col. 2, line 57).

Referring to claim 54, Pritchard teaches the system wherein said controller modulates the generation of hydrogen by said hydrogen generator based on data including said energy source data (Col. 3, line 59 – Col. 4, line 8, 1.6 volts to 1.58 volts).

Referring to claim 57, Pritchard teaches the system wherein said source of electric energy includes at least one non-grid source of electric energy (wind farm).

Referring to claim 58, Pritchard teaches the system wherein electricity for said at least one non-grid source of electric energy is produced by at least one primary energy resource (wind farm).

Referring to claim 60, Pritchard teaches the system wherein said renewable resources include *at least one of* wind, solar, and hydro (wind farm).

Referring to claim 62, Pritchard teaches a source of electric energy includes an electricity grid and at least one non-grid source of electric energy (Col. 2, lines 32-62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to combine the teachings of Pritchard with the teachings of Ewan. One of ordinary skill in the art would have been motivated to combine these references because Pritchard teaches an invention that allows for much longer periodic smoothing of the wind energy availability curve. The result of this is to allow a more reliable design for wind farms

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based upon seasonal or annual mean wind speed figures. Indeed the invention will permit, in principle, wind energy to contribute up to a 100% of total grid power, limited only by the total energy available in the local wind regime. All electrolysis products are initially put into the various storage means, and the electrolysis plant is made capable of accepting any power input up to the maximum rated, power of the wind plant. This can greatly simplify the design of the wind energy conversion plant as complex electro/mechanical output control is unnecessary. The wind farm could be designed to produce DC, and therefore hydrogen, at all times and may never have a direct connection to the grid. The invention can be made ecologically neutral by employing hydrogen combustion in stoichiometric quantities with oxygen. Furthermore, the invention does not contribute to the "greenhouse" effect and enhances the ability of wind farms to reduce total atmospheric carbon emissions (Col. 4, lines 34-54).

10. Claims 55, 56, 77, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ewan as applied to claim 42 above, and further in view of U.S. Pat. No. 5,432,710 to Ishimaru et al (hereinafter referred to as Ishimaru), supplied by the applicant. Claims 64, 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ewan in view of Pritchard as applied to claim 63 above, and further in view of Ishimaru.

Referring to claims 55, 56, 64, 65, 77, Ewan or Ewan/ Pritchard teaches all the limitations set forth above however, Ewan or Ewan/ Pritchard fails to teach the controller modulates the generation of electricity by the hydrogen conversion device based on data including energy availability data, wherein at least some of the electricity generated by the hydrogen conversion device is transmitted to the electricity grid, wherein said data is transmitted to said controller

using the same wires that are used to deliver said electricity.

However, referring to claims 55, 56, 64, 65, 77, Ishimaru teaches analogous art, wherein the controller modulates the generation of electricity by the hydrogen conversion device based on data including energy availability data, wherein at least some of the electricity generated by the hydrogen conversion device is transmitted to the electricity grid, wherein said data is transmitted to said controller using the same wires that are used to deliver said electricity (Fig. 1; Col. 7, line 60 – Col. 8, line 58; Col. 10, lines 14-41; Col. 17, lines 27-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to combine the teachings of Ishimaru with the teachings of Ewan or Ewan/ Pritchard. One of ordinary skill in the art would have been motivated to combine these references because Ishimaru teaches an energy supply system which makes effective use of energy and takes preservation of the environment into account from a consumers' standpoint as well as a national point of view (Col. 1, lines 65 – Col. 2, line 2). The in-system heat generating means is operable to supply heat in the event of a regular or temporary increase in the heat demand, and this allows the in-system power generating means to have a reduced size, thereby enabling an economical system design and operation. The heat generated by the in-system heat generating means is used when the heat demand increases temporarily and the heat load of the heat consuming installation exceeds the quantity of heat available from the in-system power generating means and this is economical in that a small in-system power generating device is sufficient, instead of necessitating an in-system power generating means capable of meeting a maximum heat demand. The system may be optimized from economic and national points of view also where the energy consumer has a consuming installation which directly uses a

combustible gas as a heat source. Where the energy consumer has an energy consuming installation adapted to use power, heat and combustible gas, an optimal amount of operation of the in-system power generating means may be computed after determining a priority order of use. The in-system power generating means is operated in the computed optimal amount and the energy consuming installations of the energy consumer are driven under this condition and under central control (a local control being possible where little load variation occurs). Thus, the optimization may include the energy consuming installations adapted to use power and heat as well (Col. 3, lines 1-51). Furthermore, Ishimaru teaches setting and operation controls allowed to be effected from a remote location, thereby controlling the system in a subtle and precise manner for its optimal condition (Col. 1, lines 40-43).

11. Claims 69, 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ewan as applied to claims 25 and 29 above, and further in view of U.S. Pat. No. 5,817,157 to Checketts (hereinafter referred to as Checketts), supplied by applicant.

Referring to claims 69, 70, Ewan teaches all the limitations set forth above, however, Ewan fails to teach the controller initiates operation of the hydrogen generator to generate hydrogen when the amount of hydrogen stored in the hydrogen storage apparatus falls below a predetermined amount, wherein said hydrogen storage chamber comprise a hydride storage chamber.

However, referring to claim 69, 70, Checketts teaches analogous art, wherein a controller further processes data concerning the hydrogen storage apparatus, wherein the controller initiates operation of the hydrogen generator to generate hydrogen when the amount of hydrogen stored

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in the hydrogen storage apparatus falls below a predetermined amount, wherein said hydrogen storage chamber comprise a hydride storage chamber (Col. 8, lines 37-55; Col. 17, lines 1-11; Col. 9, lines 1-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to combine the teachings of Checketts with the teachings of Ewan. One of ordinary skill in the art would have been motivated to combine these references because Checketts teaches a portable fuel source (Col. 3, lines 38-40) and computer system that keeps track of the cells that have not been chemically reacted and will project the number of cells that are needed to be reacted to restore the tank pressure to within a desired range (Col. 4, lines 32-41).

12. Claims 50, 52, 53, 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ewan as applied to claim 25 above, and further in view of U.S. Pat. No. 6,102,958 to Meystel et al (hereinafter referred to as Meystel), supplied by the examiner.

Referring to claims 50, 52, 53, 67, Ewan teaches all the limitations set forth above, however, Ewan fails to teach energy availability data includes real time data, stored data, energy cost data, data pertaining to credits awarded for use of certain energy sources.

However, referring to claims 50, 52, 53, 67, Meystel teaches analogous art, wherein energy availability data includes real time data, stored data, energy cost data, data pertaining to credits awarded for use of certain energy sources (Col. 8, lines 1-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to combine the teachings of Meystel with the teachings of Ewan. One of

ordinary skill in the art would have been motivated to combine these references because Meystel teaches a multi-resolutional decision support system that determines optimal controls using multi-resolutional analysis of acquired data, wherein a knowledge base is created to be searched for optimal controls (Abstract).

13. Claims 50, 52, 53, 67, 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ewan as applied to claim 25 above, and further in view of U.S. Pat. No. 5,818,725 to McNamara et al (hereinafter referred to as McNamara), supplied by the examiner.

Referring to claims 50, 52, 53, 67, 78, Ewan teaches all the limitations set forth above, however, Ewan fails to teach energy availability data includes real time data, stored data, energy cost data, data is transmitted to controller by wireless transmission, data pertaining to credits awarded for use of certain energy sources.

However, referring to claims 50, 52, 53, 67, 78, McNamara teaches analogous art, wherein energy availability data includes real time data, stored data, energy cost data, data is transmitted to controller by wireless transmission, data pertaining to credits awarded for use of certain energy sources (Col. 7-8, claims 14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to combine the teachings of McNamara with the teachings of Ewan. One of ordinary skill in the art would have been motivated to combine these references because McNamara teaches a communications channel that allows for the collection and transmission of user demand requirements and control of user demand services (Col. 1, lines 35-44), wherein distributed networks connect to central computer systems via high-speed digital lines and permits

automatic meter reading and remote services (Col. 2, lines 23-42).

Response to Arguments

14. Applicant's arguments filed July 25th 2005 have been fully considered but they are not persuasive.

Applicant argues that the claimed feature of a hydrogen conversion device is an internal combustion engine is sufficiently shown by reference to direct conversion device 730 or 738 and described at page 20. The examiner respectfully disagrees. Reference characters 730 or 738 are taught as a hydrogen conversion device. Page 20 does not teach that a hydrogen conversion device is an internal combustion engine shown by reference to direct conversion device 730 or 738. Thus the objection to the drawing has been maintained.

Applicant argues that the claimed feature of electricity for said electricity grid is produced by a plurality of primary energy resources is sufficiently shown at reference character 22 and described at page 4, line 19. The examiner respectfully disagrees. Reference character 22 is taught as an electricity grid. Page 4, line 19 does not teach that electricity for said electricity grid is produced by a plurality of primary energy resources is shown as reference character 22. Thus the objection to the drawing has been maintained.

Applicant argues that the claimed feature of primary energy resources include renewable resources is sufficiently shown at reference character 22 and described at page 4, line 19 and page 8, lines 19-24. The examiner respectfully disagrees. Reference character 22 is taught as an electricity grid. Page 4, line 19 and page 8, lines 19-24, does not teach primary energy resources include renewable resources shown at reference character 22. Thus the objection to the drawing has been maintained.

Applicant argues that the claimed feature of primary energy resources include fossil fuels, wind, solar, nuclear, and hydro is sufficiently shown at reference character 22 and described at page 4, line 19 and page 5, lines 1-2. The examiner respectfully disagrees. Reference character 22 is taught as an electricity grid. Page 4, line 19 and page 5, lines 1-2, does not teach primary energy resources include fossil fuels, wind, solar, nuclear, and hydro shown at reference character 22. Thus the objection to the drawing has been maintained.

Applicant argues that the claimed feature of energy availability data including real-time data, stored data, and energy cost data, is sufficiently shown at reference characters 22 and 14 and described at page 15, line 22 and page 16, line 7. The examiner respectfully disagrees. Reference character 22 is taught as an electricity grid. Reference character 14 is taught as a controller with data storage from which information may be taken and read or added, but none of the information added is taught as stored data, as per the claim limitations. Page 15, line 22 and page 16, line 7 does not teach energy availability data including real-time data, stored data, and energy cost data, is shown at reference characters 22 and 14. Thus the objection to the drawing has been maintained.

Applicant argues a detailed illustration of "data" is not required in the figures for proper understand of the invention. The examiner is unable to locate any previous objection solely directed to the claimed feature of "data".

Applicant argues that the claimed feature of electricity generated by a hydrogen conversion device is transmitted to an electricity grid is sufficiently shown as direct conversion device 730, 738 and described at page 9, lines 18-20 and page 11, lines 25-30. The examiner respectfully disagrees. Reference characters 730 or 738 are taught as a hydrogen conversion

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device. Page 9, lines 18-20 and page 11, lines 25-30 does not teach that electricity generated by a hydrogen conversion device is transmitted to an electricity grid is shown at direct conversion device 730, 738. Thus the objection to the drawing has been maintained.

Applicant argues that the claimed feature of energy availability data including data pertaining to the type of primary energy resources used for producing said electricity is sufficiently shown at reference character 22 and described at page 16, line 6. The examiner respectfully disagrees. Reference character 22 is taught as an electricity grid. Page 16, line 6 does not teach energy availability data including data pertaining to the type of primary energy resources used for producing said electricity is shown at reference character 22. Thus the objection to the drawing has been maintained.

Applicant argues that the claimed feature of energy availability data including data pertaining to credits awarded for use of certain energy resources is sufficiently shown at reference character 22 and described at page 10, lines 1-3. The examiner respectfully disagrees. Reference character 22 is taught as an electricity grid. Page 10, lines 1-3 does not teach energy availability data including data pertaining to credits awarded for use of certain energy resources is shown at reference character 22. Thus the objection to the drawing has been maintained.

Applicant argues that the claimed feature of a hydrogen storage apparatus comprises at least one hydride storage chamber is sufficiently shown at reference character 726 and described at page 10, lines 12-13. The examiner respectfully disagrees. Reference character 726 is taught as a storage unit. Page 10, lines 12-13 does not teach a hydrogen storage apparatus comprises at least one hydride storage chamber is shown at reference character 726. Thus the objection to the drawing has been maintained.

Applicant argues that the claimed feature of a hydrogen storage apparatus comprises at least one container for storing pressurized hydrogen is sufficiently shown at reference character 726 and described at page 10, lines 12-13. The examiner respectfully disagrees. Reference character 726 is taught as a storage unit. Page 10, lines 12-13 does not teach a hydrogen storage apparatus comprises at least one container for storing pressurized hydrogen is shown at reference character 726. Thus the objection to the drawing has been maintained.

Applicant argues that the claimed feature of data transmitted to said controller using the same wires that are used to deliver said electricity is sufficiently shown at reference characters 52, 54, and 50 and described at page 8, lines 14-18 and page 17, lines 17-19 and 24-25. The examiner respectfully disagrees. Reference character 52 is taught as an energy source, reference character 54 is taught as a data conduit and reference character 50 is taught as a network hub. Page 8, lines 14-18 and page 17, lines 17-19 and 24-25 does not teach data transmitted to said controller using the same wires that are used to deliver said electricity is shown at reference characters 52, 54, and 50. Thus the objection to the drawing has been maintained.

Applicant submits that the title has been amended. The examiner is unable to locate an amendment to the title, thus the objection to the title has been maintained.

Applicant argues that page 10, lines 1-3, provide sufficient written description for claim 67. The examiner respectfully disagrees. The examiner respectfully submits that page 10, lines 1-3 can at most provide for a hydrogen network that enables money payments to be made for services provided in real time as for preferred forms of energy sources based on environmental impact. The examiner respectfully submits that the specification is silent to teach a controller having a computer processor for receiving and processing control inputs; said control inputs

including data concerning the availability of electric energy for use by said hydrogen generator, wherein said energy availability data includes data pertaining to credits awarded for use of certain energy sources; and said controller being operatively connected to said hydrogen generator for controlling the generation of hydrogen based in part on said control inputs.

Disclosure in an application that merely renders the later-claimed invention obvious is not sufficient to meet the written description requirements of 35 U.S.C 112, first paragraph.

Lockwood, v. American Airlines, Inc. 41 U.S.P.Q.2d. 1961, 1966 (Fed. Cir. 1997).

Applicant argues that paragraph 43 and page 17, lines 17-25 provide sufficient written description for claim 77. The examiner respectfully disagrees. The examiner respectfully submits that paragraph 43 can at most provide for “[I]n the practice of the present invention in a preferred embodiment, the wires that deliver the electrical energy to the electrolyser are used to communicate useful information about the state of the electrolysis process to related devices”. The examiner respectfully submits that page 17, lines 17-25 can at most provide for “Data may also be transmitted in other embodiments, for example, via wireless transmission, via radio, infrared, satellite or optical means from HFSGS slave controller 40 to master network controller 48 and onto control network hub 50. [0092] In real time, or at some later time as desired by users 16, the status of the energy source 52 as to the type of power available, amount of power available, instantaneous and trend of power usage, instantaneous demand and predicted demand, nature and type of peak load demands and reserve capacity and percentage utilization of energy source assets can be transmitted in a similar fashion as described herein above along data conduit 54 to control network hub 50.” The examiner respectfully submits that while the specification may be enabling for wires that deliver electrical energy to a electrolyser that are also used to

communicate useful information about the state of the electrolysis process to related devices, the specification is silent to teach that the related devices be a controller and any useful information be data concerning the availability of electric energy for use by a hydrogen generator.

Disclosure in an application that merely renders the later-claimed invention obvious is not sufficient to meet the written description requirements of 35 U.S.C 112, first paragraph.

Lockwood, v. American Airlines, Inc. 41 U.S.P.Q.2d. 1961, 1966 (Fed. Cir. 1997).

In response to applicant's argument that Meystel is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Meystel is directed to a multi-resolutional decision support system for plant performance, such as a power plant.

In response to applicant's argument that McNamara is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, McNamara is directed to a system for monitoring and controlling customer power demand in a utility such as electric, gas, and water, and more particularly an information distribution network for use in such a system which allows the connection and disconnection of customers from the utility, the collection and transmission of user demand requirements, and the control of user demand for utility services.

Regarding the Meystel and McNamara references, applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

15. All other arguments with respect to claims 25, 29, 31-35, 37-50, 52-67, 69-74, and 77-81 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Shechtman whose telephone number is (571) 272-3754. The examiner can normally be reached on 9:30am-6:00pm, M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SPS

Sean P. Shechtman

September 17, 2005


ALBERT W. PALADINI
PRIMARY EXAMINER